SANTA CRUZ BIOTECHNOLOGY, INC.

MRGX4 siRNA (h): sc-106241

BACKGROUND

Mas-related G protein-coupled receptor member X1 (MRGX) is a sensory neuron-specific G protein-coupled receptor that is involved in the function of nociceptive neurons. This integral membrane protein may also regulate nociceptor development and/or the sensation or modulation of pain. There are four members (MRGX1-4) in the human MRGX familly. MRGX1 and MRGX2 receptors stimulate both $G_{\alpha\ q}$- and $G_{\alpha\ i}$-regulated pathways, while MRGX3 and MRGX4 receptors mainly activate $G_{\alpha\ q}$-regulated pathways. $G_{\alpha\ q}$ proteins are involved in the calcium-signaling pathway downstream of the MRGX receptors. MRGX receptors are unique in that they are expressed in a subset of small dorsal root and trigeminal sensory neurons.

REFERENCES

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2. Han, S.K., et al. 2002. Orphan G protein-coupled receptors MrgA1 and MrgC11 are distinctively activated by RF-amide-related peptides through the $G_{\alpha\ q/11}$ pathway. Proc. Natl. Acad. Sci. USA 99: 14740-14745.
3. Lembo, P.M., et al. 2002. Proenkephalin A gene products activate a new family of sensory neuron—specific GPCRs. Nat. Neurosci. 5: 201-209.
4. Takeda, S., et al. 2002. Identification of G protein-coupled receptor genes from the human genome sequence. FEBS Lett. 520: 97-101.
5. Robas, N., et al. 2003. MRGX2 is a high potency cortistatin receptor expressed in dorsal root ganglion. J. Biol. Chem. 278: 44400-44404.
6. Chen, H. and Ikeda, S.R. 2004. Modulation of ion channels and synaptic transmission by a human sensory neuron-specific G protein-coupled receptor, SNSR4/MRGX1, heterologously expressed in cultured rat neurons. J. Neurosci. 24: 5044-5053.
7. Nothacker, H.P., et al. 2005. Proadrenomedullin N-terminal peptide and cortistatin activation of MRGX2 receptor is based on a common structural motif. Eur. J. Pharmacol. 519: 191-193.
8. Zhang, L., et al. 2005. Cloning and expression of MRG receptors in macaque, mouse, and human. Brain Res. Mol. Brain Res. 133: 187-197.

CHROMOSOMAL LOCATION

Genetic locus: MRGPRX4 (human) mapping to 11p15.1.

PRODUCT

MRGX4 siRNA (h) is a pool of 2 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MRGX4 shRNA Plasmid (h): sc-106241-SH and MRGX4 shRNA (h) Lentiviral Particles: sc-106241-V as alternate gene silencing products.

For independent verification of MRGX4 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-106241A and sc-106241B.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

MRGX4 siRNA (h) is recommended for the inhibition of MRGX4 expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

pan MRGX (F-1): sc-393652 is recommended as a control antibody for monitoring of MRGX3 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MRGX4 gene expression knockdown using RT-PCR Primer: MRGX4 (h)-PR: sc-106241-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.